

Figure 1 All-Optical Switching Node

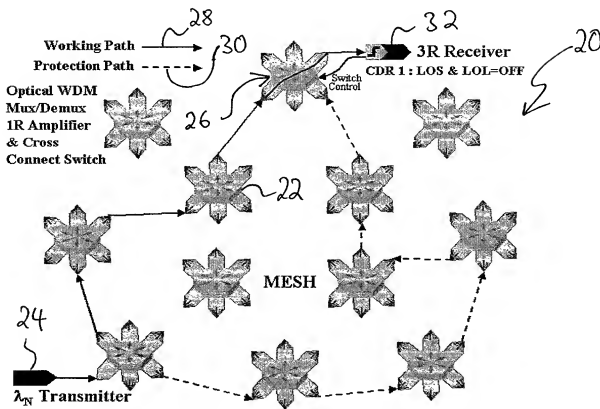


Figure 2 All-Optical Mesh Network – Uni-directional Connections



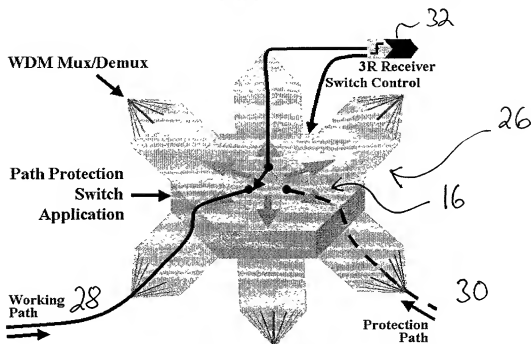


Figure 3 Integrated All-Optical Cross-Connect & Path Protection Switch

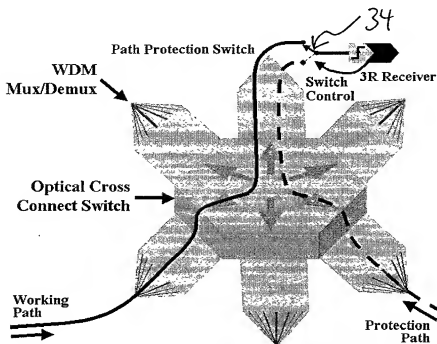


Figure 4 Separate All-Optical Cross Connect & Path Protection Switches

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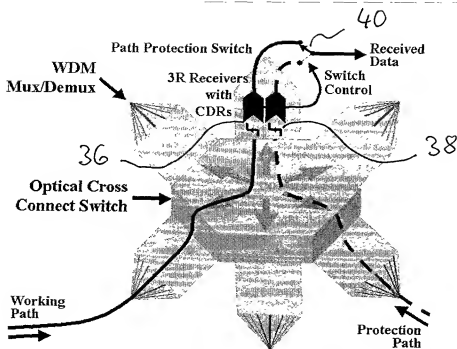


Figure 5 Dual 3R Receivers on Input Side of Electrical Path Protection Switch

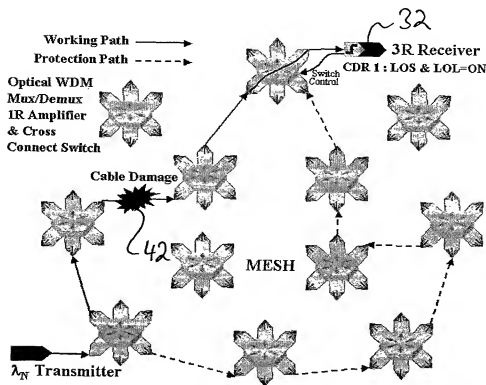


Figure 6 All Optical Mesh Network with Cable Damage

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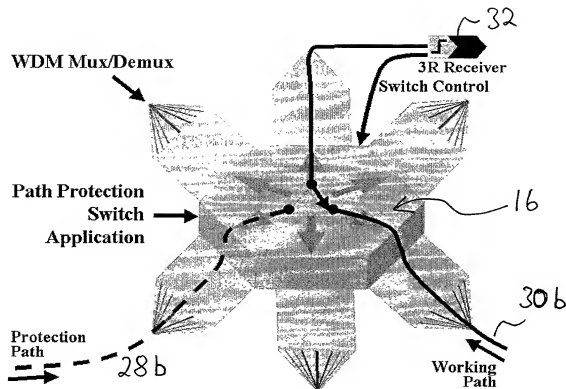


Figure 7 Optical Protection Switch Activated - New Working Path

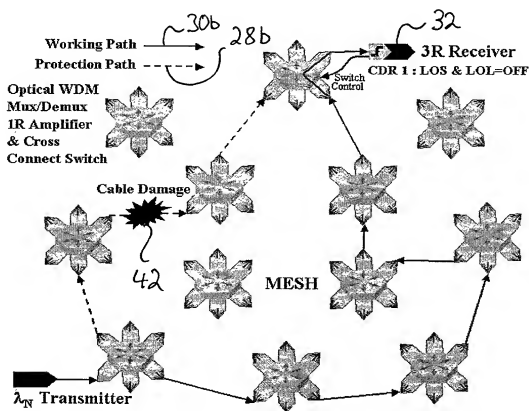


Figure 8 All-Optical Mesh Network - Fault Bypassed with New Working Path

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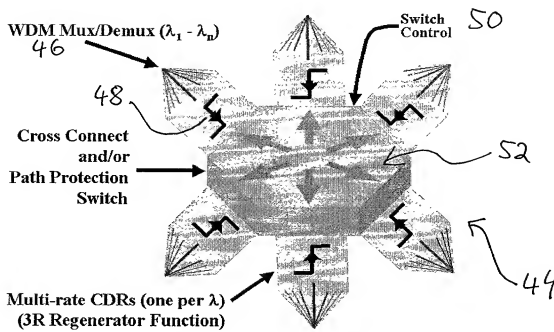


Figure 9 OEO Switching Node

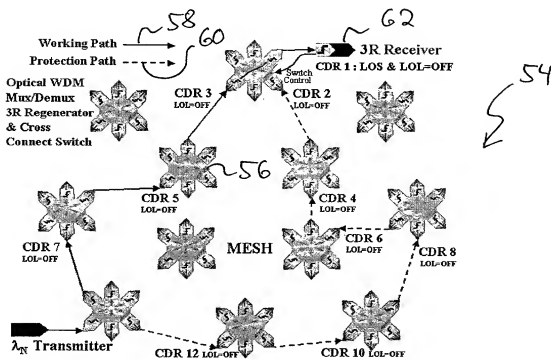
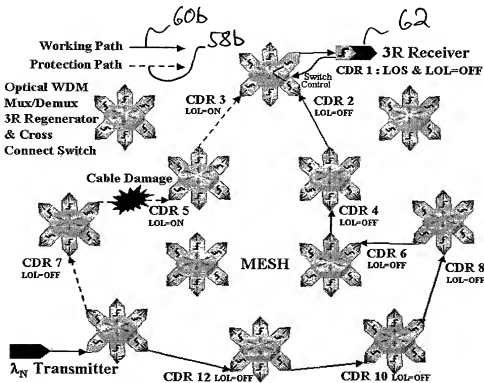
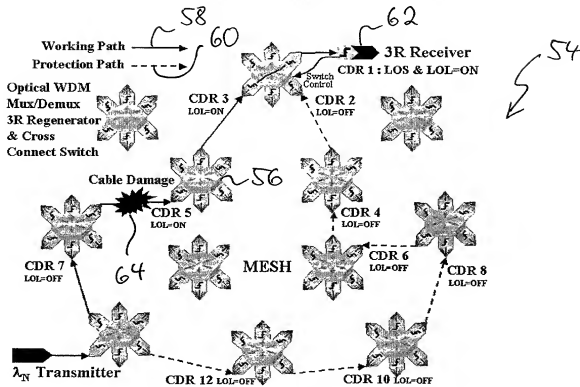


Figure 10 Mesh Network of OEO Switching Nodes







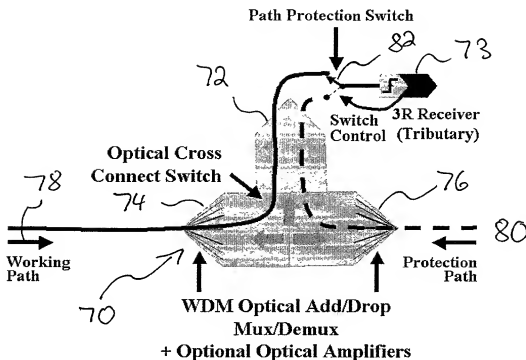


Figure 13 Reconfigurable OADM Node - Path Protection Switch & 3R Receiver

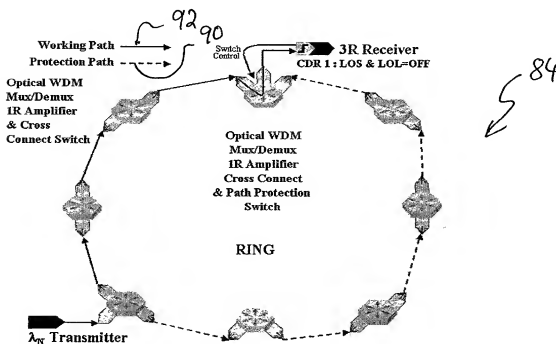


Figure 14 All-Optical Ring Network - Working Path Operational



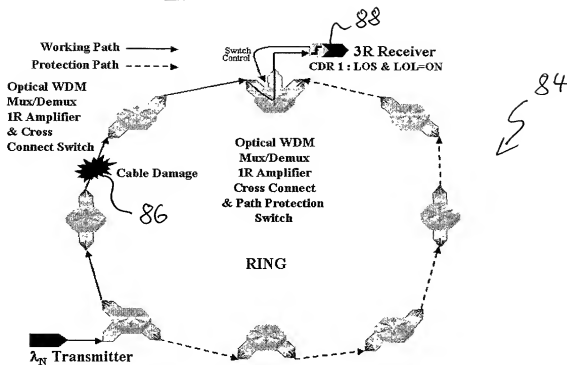


Figure 15 Cable Damage in Working Path of All-Optical Ring Network

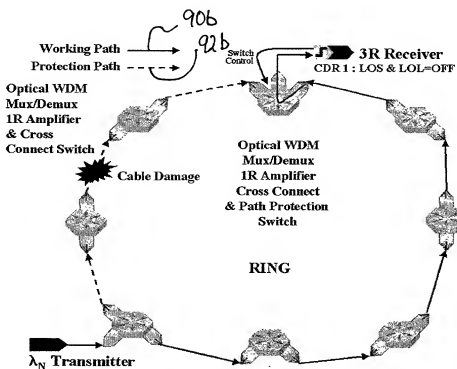
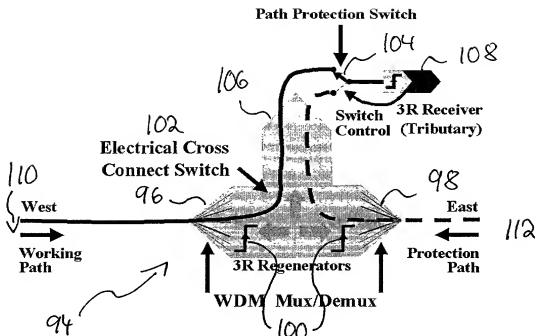


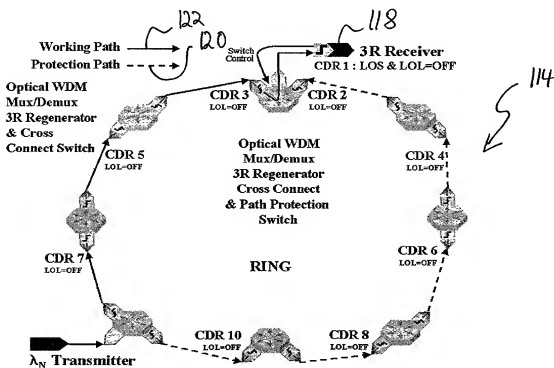
Figure 16 New Working Path - All Optical Ring Network Failure Bypassed

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**Figure 17** Reconfigurable OEO Add/Drop WDM Node - Path Protection Switch & 3R Receiver



**Figure 18 Ring Network of Reconfigurable OEO Nodes – Working Path Operational**



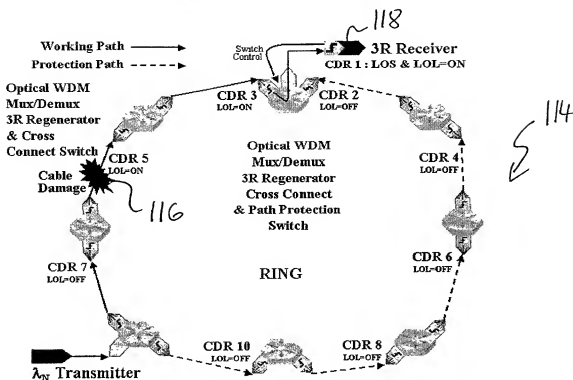


Figure 19 Cable Damage in Working Path of OEO Ring Network

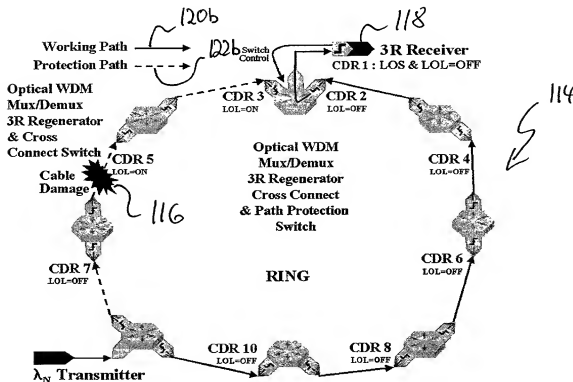


Figure 20 New Working Path - OEO Ring Network Failure Bypassed

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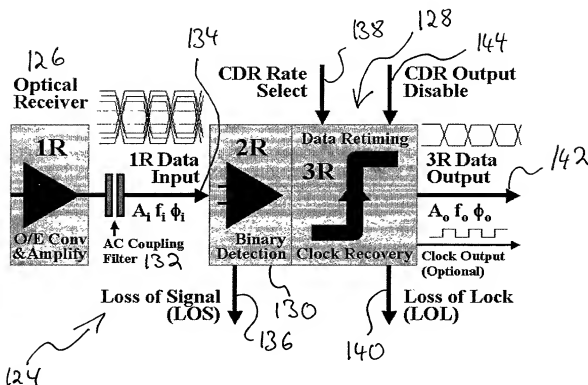


Figure 21 Optical Receiver and Multi-Rate CDR - Showing Inputs & Outputs

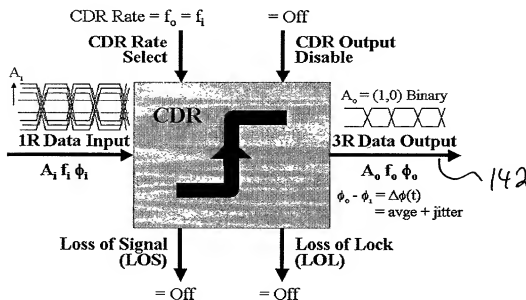


Figure 22 CDR Normal Operating State



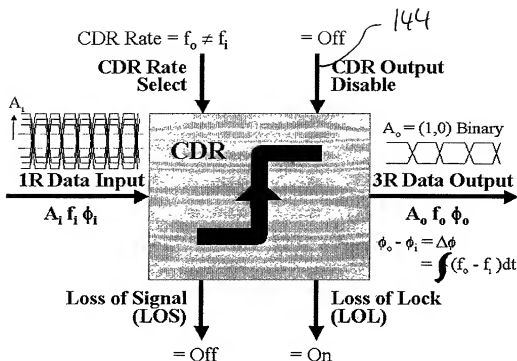


Figure 23 CDR - Signal above Threshold but in Loss of Lock State - Pseudo Data Propagated

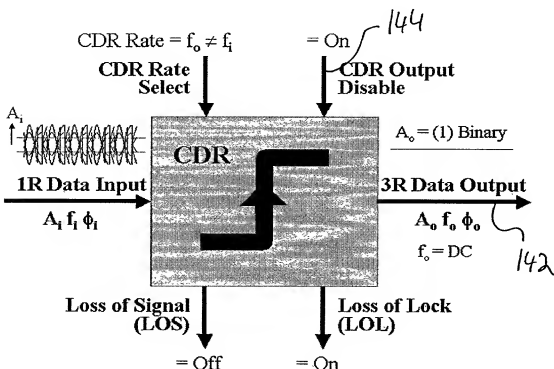


Figure 24 CDR - Signal above Threshold but in Loss of Lock State - Pseudo Data Inhibited



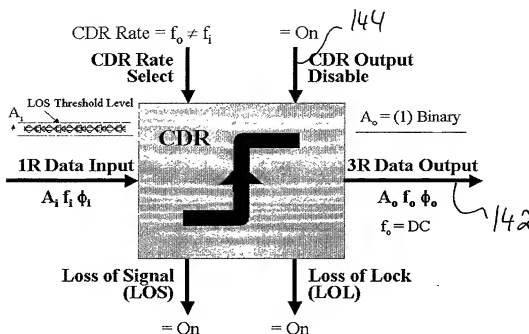


Figure 25 CDR - Signal below Threshold and in Loss of Lock State - Pseudo Data Inhibited

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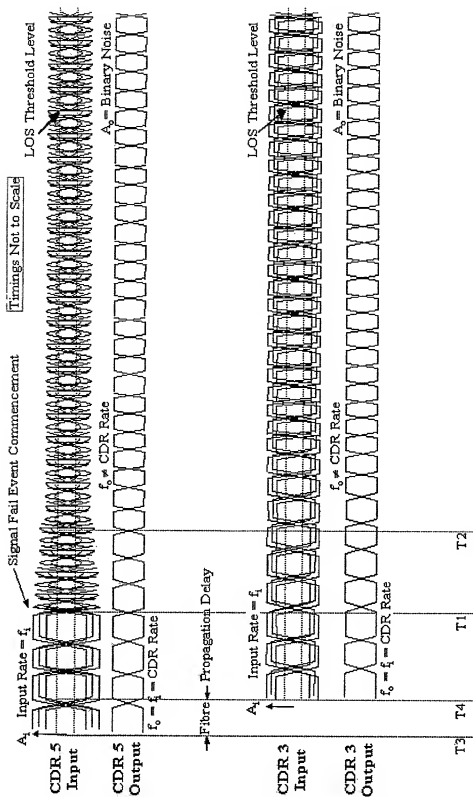
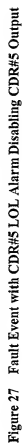


Figure 26 Fault Event with Pseudo Data being forwarded from CDR to CDR







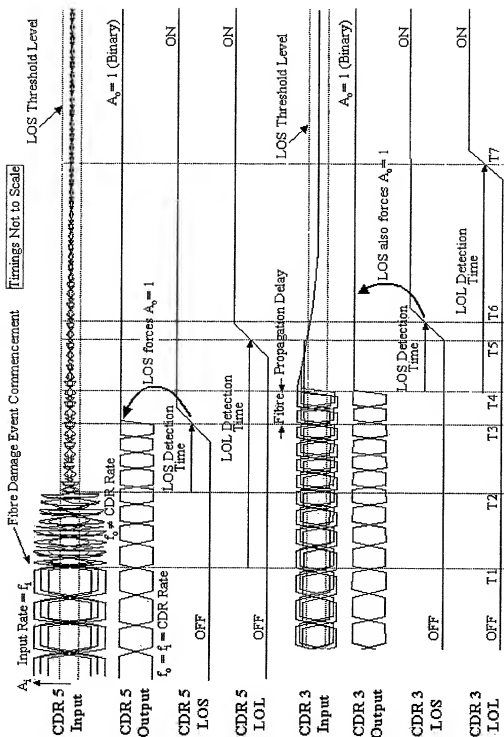


Figure 28 Fault Event with CDR#5 LOS Alarm Disabling CDR#5 Output